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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.	
09/905,189	07/13/2001	Guang-Jong Jason Wei	163.1438US01	3059	
23552	7590 03/26/2003				
MERCHANT & GOULD PC			EXAMINER		
P.O. BOX 290 MINNEAPOL	X 2903 APOLIS, MN 55402-0903		PAK, JC	PAK, JOHN D	
			ART UNIT	PAPER NUMBER	
			1616	1/	
			DATE MAILED: 03/26/2003	4/	

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No. 09/905,189

Applica..t(s)

WEI et al.

Examiner

John Pak

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	The MAILING DATE of this communication appears	on the cover she	et with t	he correspondence address		
	for Reply	•		•		
A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.						
mailing	sions of time may be available under the provisions of 37 CFR 1.136 (a). g date of this communication.					
- If NO p - Failure - Any re	period for reply specified above is less than thirty (30) days, a reply within period for reply is specified above, the maximum statutory period will app to reply within the set or extended period for reply will, by statute, cause appy received by the Office later than three months after the mailing date of d patent term adjustment. See 37 CFR 1.704(b).	ply and will expire SIX ( se the application to be	(6) MONTHS	S from the mailing date of this communication. NDONED (35 U.S.C. § 133).		
Status						
1) 💢	Responsive to communication(s) filed on 12/2/02,	<i>1/13/03, 1/15/</i> (	<u>03</u>			
2a) 🗌	This action is <b>FINAL</b> . 2b)   ✓ This act	tion is non-final.				
3) 🗆	Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under <i>Ex parte Quayle</i> , 1935 C.D. 11; 453 O.G. 213.					
	tion of Claims					
4) 💢	Claim(s) 1-47			is/are pending in the application.		
4	1a) Of the above, claim(s)			is/are withdrawn from consideratio		
5) 🗆	Claim(s)			is/are allowed.		
	Claim(s) <u>1-47</u>					
	Claim(s)					
	Claims					
Applica	ition Papers					
9) 🗆	The specification is objected to by the Examiner.					
10)	The drawing(s) filed on is/ar-	re a accepte	ed or bi	objected to by the Examiner.		
	Applicant may not request that any objection to the d	Irawing(s) be held	l in abey	ance. See 37 CFR 1.85(a).		
11)	The proposed drawing correction filed on	is:	: aD &	approved by disapproved by the Examine		
	If approved, corrected drawings are required in reply t	to this Office acti	on.	·		
12)	The oath or declaration is objected to by the Exami	iner.				
	under 35 U.S.C. §§ 119 and 120					
	Acknowledgement is made of a claim for foreign pr	riority under 35	U.S.C.	§ 119(a)-(d) or (f).		
a)	☐ All b)☐ Some* c)☐ None of:					
	1. Certified copies of the priority documents hav					
;	2. Certified copies of the priority documents hav	re been received	in Appli	ication No		
	<ol> <li>Copies of the certified copies of the priority do application from the International Burea ee the attached detailed Office action for a list of the</li> </ol>	eau (PCT Rule 17	7.2(a)).	·		
14)	Acknowledgement is made of a claim for domestic					
a) □						
15)	Acknowledgement is made of a claim for domestic	• •				
Attachme		priority 223	0 0.0.0	, 33 120 dilayor 1211		
1) XNo	otice of References Cited (PTO-892)	4) Interview Surr	nmary (PTO	)-413) Paper No(s)		
	stice of Draftsperson's Patent Drawing Review (PTO-948)	5) Notice of Infor	rmal Patent	t Application (PTO-152)		
3) X Inf	formation Disclosure Statement(s) (PTO-1449) Paper No(s). 5,9	6) Other:				

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Claims 1-47 are pending in this application.

Applicant's election with traverse of sebacic acid esters and adipic acid esters in Paper No. 10 (1/15/03) is acknowledged. The traversal is on the ground(s) that all esters of sebacic acid and adipic acid can be searched together without undue burden. Applicant's comments are noted and the claims will presently be examined to the extent that they read on all such esters.

The requirement is still deemed proper and is therefore made FINAL.

Changes to the following observations regarding the claim language are strongly suggested.

- (1) Numerous dependent claims recite only one ingredient, but the composition is claimed in terms of "comprising." This makes for a composition that comprises only one ingredient. See e.g. claim 5.
  - (2) Claim 7 does not have any transitional language.
  - (3) In claim 18, "stabilizer comprises" is recite twice.
- (4) In claim 20, "tetraethanolamine" appears to be a mistake. An amine cannot take four ethanol groups without changing into a quaternary ammonium.
- (5) Claim 47 is somewhat internally inconsistent. While bottling of food, beverages or pharmaceuticals is claimed, only a "beverage container" is contacted with the composition (see line 3).

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-33, 35, 42-46 are rejected under 35 U.S.C. 102(b) as being anticipated by Carr et al. (WO 98/28267).

Carr et al. explicitly disclose an in situ antimicrobial and disinfecting composition wherein a peroxygen compound and a diester of the formula R¹-O-CO-R²-CO-O-R³, wherein R¹ and R³ each represent C1-4 alkyl and R² represents C2-6 alkylene, are reacted to produce an aqueous percarboxylic acid solution (see the paragraph bridging pages 2 and 3). 3-90 wt% diester + 2-30 wt% hydrogen peroxide + 5-90 wt% water is disclosed (p. 3, lines 7-16; p. 7). The diester precursor is taught to be advantageous because the percompound containing an ester group and a peracid group has been found to be particularly effective as a disinfectant compared with the corresponding acid peracid )p. 4, lines 16-23). Examples of disters include dimethyl esters of adipic acid, glutaric acid and succinic acid (p. 5, lines 20-34; see from p. 14, line 30 to p. 16, line 9). An acid catalyst that can be inorganic or *organic* is used (p. 6, lines 13-18). Dilute formulations containing 50-90 wt% water is disclosed (p. 8, first paragraph; see also p. 13, lines 8-14). First forming a more concentrated solution and then diluting with water is disclosed (paragraph bridging pages 8 and 9). 0.075-0.3 wt% stabilizers such as ethylidene diphosphonic

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acid and others are disclosed (p. 10, lines 11-24). HEDPA, another term for HEDP, is exemplified (pp. 15-16). Various substrates are disclosed for applications. Liquid substrates such as water used in food engineering, breweing, wine making waters and alcohol distilling, hard surfaces, contaminated articles intended for re-use in food processing, catering, domestic or hospital environment, plant or apparatus, containers, machinery, plant and pipework are all disclosed as suitable substrates to apply the in situ antimicrobial composition (see from p. 13, line 21 to p. 14, line 23). Immersion or spraying of articles is taught (p. 14, lines 12-15). See also all the claims, claims 1-43. Disinfecting temperature range of about 4°C to boiling point of the solution is disclosed (p. 13, lines 15-20). Activity against the fungus *Aspergillus niger* is disclosed (p. 21, Example 42).

It is noted that Carr et al. do not explicitly disclose the salts of phosphonate of instant claim 20, but the way claim 20 is written, there is no requirement to actually select such particular salts – the salts are further defined in claim 20 but there is no claim requirement to actually select such salts. It is also noted that claim 21 requires the composition to be free of added strong inorganic acid. Carr et al. clearly teach use of strong organic acids. In re

Sivaramakrishnan, 213 USPQ 441 (CCPA 1982). Additionally, it is noted that Carr et al. do not explicitly disclose that the composition, when diluted at least one fold, has activity against microorganisms as set forth in applicant's claims 22-23. However, it is the Examiner's position that Carr et al. clearly and explicitly disclose compositions that contain the same ingredients as

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applicant's claimed compositions. Therefore, the same activity must necessarily be present in Carr's compositions.

With respect to the method for making claims 24-32, the following further remarks are noted. Carr et al. clearly teach mixing of the three starting ingredients, for they make up the in situ antimicrobial and disinfecting composition of Carr's invention. See Carr's Examples 1-44 on pages 14-22. Carr et al. teach that the mixture of ingredients results in an equilibrium mixture of peracids and precursors (p. 3, line 17 to p. 4, line 15). Immediate generation of the highly active ester-peracid is taught, as well as storing for several weeks such as 3 weeks (21 days) to 6 weeks (p. 4, lines 16-33). Dilution for making the use composition has already been discussed. Continuous additions of ingredients are exemplified (pp. 14-22). The term "batch-wise" is open to small batches such as those used by Carr et al. in their examples (id.). The percentage amounts have been discussed above.

The claims are thereby anticipated.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

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Claims 1-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over obvious over Carr et al. (WO 98/28267) in view of Hei (US 6,024,986), Chemical abstracts 134:97683 and Richter et al. (WO 00/30690).

Teachings of Carr et al. are discussed above and the discussion there is incorporated herein to avoid repetition.

Hei is cited to establish that chelating agents such as 1-hydroxyethylidene-1,1-diphosphonic acid (HEDP, "DEQUEST") are known to enhance the stability and biological activity of peroxyacids and also to sequester hardness ions (column 7, lines 7-15).

Chemical abstracts 134:97683 is cited to establish that peracetic acid is known to have activity against *Chaetomium funicola* and *arthrinium sacchari*.

The publication by Richter et al. discloses that peracetic acid + hydrogen peroxide is known to control *Bacillus cereus* at 40-60°C (pages 32-37).

Claims 1-33, 35, 42-46 have already been rejected as being anticipated by Carr et al., so there is no patentable difference between the those claims and Carr et al. There are several differences between the invention of the remaining claims and the primary reference by Carr et al.

The 1:1 dilution factor (applicant's claim 34) is not explicitly disclosed by Carr et al. but such dilution factor would have been well within the skill of the ordinary skilled artisan, who would have been motivated to obtain a target peracid and/or hydrogen peroxide concentration by

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appropriately diluting the more concentrated solution. Depending on the initial strength of the concentrate, 1:1 dilution factor would have been fairly suggested.

The specific microorganisms of claims 36-41 and their specific logarithmic control factor are not expressly disclosed by Carr et al. However, percarboxylic acids and hydrogen peroxide are well known disinfectants. From the known activity of peracetic acid and hydrogen peroxide against the claimed microorganisms, one having ordinary skill in the art would have been motivated to also utilize the in situ antimicrobial and disinfecting composition taught by Carr et al. to control such microorganisms. Reduction by at least one log factor within 10 seconds at 60°C is claimed for applicant's composition, so the same must hold for Carr's composition because Carr's composition is made up of the same ingredients as applicant's composition.

The cold aseptic bottling of food, beverage or pharmaceuticals, as claimed in claim 47, is not explicitly disclosed by Carr et al. but there's only a technical difference. Although a beverage container is not expressly set forth, Carr et al. nonetheless teach disinfecting beverages and containers of all types (see from p. 13, line 21 to p. 14, line 23). Immersion or spraying of articles is taught (p. 14, lines 12-15). Therefore, the features of claim 47 is fairly suggested.

Therefore, the claimed invention, as a whole, would have been <u>prima facie</u> obvious to one of ordinary skill in the art at the time the invention was made, because every element of the invention and the claimed invention as a whole have been fairly suggested by the teachings of the cited references.

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Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Examiner Pak whose telephone number is (703) 308-4538. The Examiner can normally be reached on Monday through Friday from 7:30 AM to 4 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's Supervisor, Mr. José Dees, can be reached on (703) 308-4628.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-1235.

MARY EXAMINER GROUP 1600